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BUY A BOX OF APPLES AND HELP THE ARBORETUM

The members of the Arboretum Foundation are well aware of the importance to the State of the apple industry, and its difficulties owing to the stoppage of export this year. Since the Arboretum is an institution of state-wide significance dependent for its growth on the economic welfare of the State, it seems appropriate that one of our undertakings should be in the direction of helping publicize Washington apples. We have therefore arranged for a very attractive special twelve-pound carton of one dozen "Delicious" apples which will bear the Arboretum Foundation name and which can be delivered for \$1.50, express included, anywhere in the United States.

Business houses and executives in many Seattle firms have already given us orders for these to be shipped to their friends and clients throughout the country, and we hope that every member of the Foundation will want to order several boxes and to help us sell as many as possible. The Foundation will benefit by this not only financially, but as well by the publicity it accords the Arboretum.

The office of the Arboretum Foundation at 4420 White Building, will take orders every week-day morning from 8 until 12 o'clock. There will be a sample carton of the apples there for you to see if you wish to. Send them to your children who are away at college, send them to friends who are convalescing, send them in gratitude for favors past, and in anticipation for favors to come, send them for Thanksgiving and for Christmas,—you may be sure they will be happily received.

ARBORETUM NOTES

THE leaf-bud cutting is coming into more or less prominence as a method of propagating certain plants. The method has been known for some time, an experimenter at Iowa State College having demonstrated its use in the propagation of apples and geraniums several years ago. During the past summer Skinner, at Cornell, published results in a popular article which demonstrated that rhododendrons could easily be multiplied in this way. Mr. Pruey, propagator at the arboretum, having become interested in the work of Skinner, arranged a series of tests, using both rhododendrons and camellias propagated by the leaf-bud method. The results with camellia have been outstanding. The

cuttings were taken on September 19 and were placed in pure peat in a special propagating frame similar to a grafting case. The temperature was held quite high—80 degrees F. during the day and approximately ten degrees lower at night. At the end of two months they were well-rooted, especially those which had been treated with hormone solutions.

There are two particularly striking things which associate themselves with the leaf-bud method of propagating camellias. In the first place roots seem to form much more rapidly than on the usual stem cutting. Those who have tried to root stem cuttings of camellias are familiar with what might be termed the typical response. The base of the cutting will produce ample callus tissue in a very short time but the roots will be extremely slow in forming. The stem cutting may remain in the propagating bench for many weeks with a large callus at the base but with practically no root development. Not so with the leaf-bud cutting: roots form on it at a relatively rapid rate.

Secondly, the leaf-bud method enables a propagator to take many more cuttings. The usual stem cutting will be five or six inches long and will have four or more mature leaves. From this single stem cutting it would be possible to make four or more leaf-bud cuttings, since every mature leaf with its attendant axillary bud is a potential cutting.

The leaf-bud cutting is made in a very simple manner. One merely removes a branch or twig of the particular shrub or tree to be propagated and cuts away each bud, *leaving the attendant leaf intact*. The cut is easily made and is done in almost the same way that buds are removed from the scion stick in bud grafting, with the above-mentioned (and very important) exception. Place the blade of the knife about one-half inch below the point of attachment of leaf and stem (the node): cut upward, taking a small amount of wood: as the point of attachment of leaf and stem (node) is reached tip the knife slightly so as to take a bit more wood immediately below the bud and continue cutting upward until the knife emerges about one-half inch above the node. The resulting cutting will have three principal parts, (1) the leaf blade proper, (2) the petiole or leaf-stalk, and (3) the axillary bud and its attendant flaps of bark and wood which were removed from the stem in making the cut. It is now ready to be placed in the bench or bed. It should be inserted

to the top of the leaf-stalk so that all that remains above the surface of the rooting medium is the broad, green blade of the leaf.

By making use of the leaf-bud cutting it will be possible to propagate many more individuals from a given stock plant and to get root formation more rapidly. It is known that a number of varieties of camellias and rhododendrons can be started in this way.

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THE USE OF VITAMIN B₁ IN THE GARDEN

J. H. HANLEY

SEVERAL articles of a popular nature have appeared recently which set forth the many possibilities of using Vitamin B₁ to increase growth in garden plants. As a result of these articles gardeners in general have been prone to accept this relatively new chemical as the answer to all their plant-growing problems. To be sure, the substance must have outstanding attributes if one is to believe the claims that have been advanced by the men who have introduced it. Since these men have enjoyed particularly good reputations in the past we incline to the belief that there is a great future for the substance if it is properly used.

However, in the rush of enthusiasm which invariably greets such a remarkable contribution to science and to gardening, one may easily overlook certain facts which tend to limit the use of the substance. The experimenters themselves have announced certain of these limitations and we know from the queries that have come to us that some few gardeners at least, have read them without comprehending their importance.

For example, it would not be particularly wise for anyone to rush into the garden at this season of the year with the sprinkling can filled with Vitamin B₁ solution. Plants in the temperate and cold regions have passed into their normal dormant state by this time (late November) and they should remain so until spring approaches. To feed them the vitamin now might cause them to produce new growth too soon with the result that freezing weather would kill the tip growth and the treatment would have defeated its purpose. Again, if no growth acceleration followed the treatment at this season, one would be merely wasting money, and perfectly good chemical as well. Hence, if the gardener expects to make use of this substance, he or she should be encouraged to wait until the normal period of plant dormancy has passed.

On the basis of remarks made by Dr. F. W. Went of the California Institute of Technology when he visited here last spring it would be well to keep another apparent fact in mind. Dr. Went pointed out that the best results from the use of the vitamin can be expected on light, sandy soils; that soils high in organic matter, and particularly if they contain large quantities of peat, may show little or no effect. It was explained as a possibility that there might be present in peat or in peaty soils certain types of bacterial life which were capable of producing the vitamin or other chemical substances which react in the same way. Therefore, if no striking result follows the use of Vitamin B₁ one should not immediately condemn it as being worthless; it is just possible that the bacteria present in the soil are producing it or similar substances—that the plants are already getting it in sufficient quantities. Only under conditions of specific deficiency will the most striking results occur.

The gardener must also be reminded that a single application will seldom produce the desired effect. The vitamin solution should be applied at regular intervals over a period of several weeks before marked effects can be expected.

THE BEAUTYBERRY

ONE frequently encounters shrubs with particularly pleasing characteristics but which for reasons unknown have escaped general garden usage. Such a one is *Callicarpa japonica*, the Japanese Beautyberry. It is probably true that for the greater part of the year there is nothing outstanding about this shrub. But in the fall, after the leaves have gone, it can compete, with entire satisfaction to itself, with a host of more generally known types. At this season it displays a wealth of clustered fruits of a color which defies accurate description. To say that the berries are silvery purple is insufficient for the term falls short of describing the luster and soft brilliance that are so characteristic and that actually account for their attractiveness. *Callicarpa japonica* is one of the finest shrubs for fall effects that we have been privileged to see and anyone who is looking for something different to occupy a space 5 by 5 feet in the garden will be amply repaid when the fruits appear after the leaves have disappeared.

Judged on the basis of the fourteen individuals now at the arboretum we can see only one possible difficulty in buying plants of the Japanese Beautyberry. There is a distinct tendency toward variation among the individuals. This variation is particularly apparent in the fruit, which may be large on some plants and small on others; the fruit color may also vary, some being much more dull than others. In order to overcome such a difficulty it would be wise to select the plants in the nursery while they are in fruit. At the arboretum we have made six selections from the fourteen plants and plan to propagate vegetatively from these six alone. Thus we can be assured of getting only the best types for the permanent plantings.

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SEED COLLECTING IN WESTERN MOUNTAINS

By SYLVIA EDMONDS

(Continued From Last Month)

SOMEWHAT later we pitched camp on the shores of Little Cultis Lake at 5,500 feet elevation. On the first morning the dish towels were found frozen into so many white boards; yet at mid-day it was warm with an almost tropical dampness. In the damp mountain meadows of this region there appeared many new plant treasures. The slender bog orchis (*Habenaria saccata*), several violas, sedges, and a streptopus were common, while in the forest *Vaccinium*, *Ribes*, and *Ceanothus prostratus*, with its fluffy blue bloom, held forth.

Our next camp was established in the Rogue River National Forest at Farewell Bend. A delicate, white, fragrant iris (*I. californica*) was abundant close to camp and across the river we gathered the foot-long cones of the sugar pine for our fire. Here also we saw our first incense cedar, *Libocedrus*, with its pungent odor and daintily drooping habit.

From here we drove up to Herschberger Mountain in the Siskiyou Range. The road passes near the famous Rabbit Ears, two naked spires of rock, strangely shaped. Herschberger peak was a natural rock garden with petite, furry, Mariposa lilies in

every crevice. In an alpine valley below we found fields of *Veratrum*, the false hellebore, *Lonicera*, and *Caltha*, interspersed with clumps of the Jacob's Ladder (*Polemonium pulcherrimum*), and thickets of alpine willow. Here and there were bright groups of *Lewisia* and *Claytonia*. If we could but reproduce such loveliness in our own surroundings!

On the way to Ragsdale Butte we passed through country that was fascinating; here we found many plants that were new to us. On a grassy flat in an oak-pine woodland grew stately *Downingias*, *Cercocarpus*, the beautiful little *Phlox adsurgens*, numerous *Brodiaeas*, *Ceanothus* in blue and white, and the purple-spotted, magenta *Godetias*. But the trip in was as nothing compared with the delights of the camp site. We raised our tents in an amphitheatre, sheltered on three sides by heavily wooded slopes of Douglas fir and opening onto a fascinating mountain valley. At night the moon shed an almost daylight brilliance on the group singing around the campfire. This was our finest camp.

From here we climbed Ragsdale Butte, where we could look out on all sides and see distant ranges obscured by successively heavier veils of haze. The butte was a jumbled rocky mass glorified by a riot of color, with powder blue gilia (*G. capitata*), scarlet columbine, scrub oak entwined with flame honeysuckle, and an occasional tiger lily (*L. pardalinum*), shielding the rocks. Seeds of the rare mottle-leaved *Asarum hartwegii* were plentiful below the peak and *Mitella trifida*, the golden *Brodiaea hendersonii*, *Erythronium grandiflora*, *Collinsia* and *Pentstemon rattanii* were collected in abundance.

July fourth was spent visiting the Oregon Caves and exploring the mountainous surrounding country. The woods were wet but several interesting curiosities were found. Most striking was an ericacious saprophyte on fallen Douglas fir logs, the snow plant (*Sarcodes sanguinea*). It is a fleshy, bright red plant rising about a foot from a bulbous stem base. They are so highly prized that the state government has made it unlawful to pick them. Saprophytic plants of this type are not particularly common; nor are the parasitic forms abundant in the groups of higher plants. Yet, in this section of Oregon, there were found two other plants of these types. Both were members of a plant family (*Orobanchaceæ*) which is closely allied to the snapdragon group. One, the delicate, yellow *Orobanche pinorum*, is a parasite on *Holodiscus*, the common and abundant ocean-spray; the other, *Boschniakia*, looks very much like a much-weathered cone of Douglas fir and is called the cone plant.

The moth mullein, a *Verbascum*, was plentiful and, unlike our native species (*V. thapsus*), this Oregon form is very attractive with its spikes of yellow or white flowers. Seeds of *Silene Hookeri* and *Aquilegia formosa* were abundant. Fragrant *Rhododendron occidentale* was in full bloom and close to it was *Rhamnus californica* in flower. These two were found on Lake Mountain west of the caves.

South of O'Brien at the summit of the Siskiyou we established our next camp on a long north-south ridge. This was really the life; home was any available mountain top. Just over the side of the ridge we found some delicate snow orchids (*Cephalanthera*) and nearby in a more open spot was *Lappula occidentale*, looking like forget-me-nots but four or five times as large as our cultivated varieties. In a bog close by the beautiful *Lilium pardalinum* in bloom, rubbed shoulders with the stately aristocratic pitcher plant, *Darlingtonia*. Nearby also was the famous California

myrtle (*Umbellularia*) and a dainty *Cypripedium* or lady-slipper.

Through the sunny forested canyon of the Rogue River we drove next day and made camp—our second in California—near a wide, warm pool in the river. Laundry conditions were ideal and everyone in camp took advantage of them. Marble Mountain, our goal the next morning, was fourteen miles from camp, a long hike, necessitating an early start. The mountain was majestic and beautiful as we approached it and on the upper slopes the broad patches and groups of sedums, alliums and saxifrages created stunning naturalistic effects.

In the Trinity Alps we experienced our first pack trip. Four horses were hired to carry food and bed rolls for the entire party as we hiked the eleven miles in to Canyon Lakes. The two large lakes were on different levels, connected, as if carefully planned, by a waterfall. A few wind-blown weeping spruces clung tenaciously to the white granite slopes above, effectively portraying nature's artistry. This graceful spruce (*Picea Breweriana*) is a rarity; it is found over a very limited area and is extremely difficult to raise. It is a beautiful tree, some thirty feet tall, with limp branches drooping a few inches to five feet, giving the whole a billowy, cascade-like appearance. In the crevices of the dazzling white granite grew several colorful plants, a bright pink *Pentstemon* or beardtongue, and the beautiful *Cassiope* or mountain heather. Probably the rarest and most valuable plant found in the Trinity Alps was the shrubby, bright pink primrose, *P. suffrutescens*, which is in great demand for rock gardens.

Striking westward from the mountains we came next to Junction City, California, and the seashore. Our first sight of the coast was a thrill of brown hills and green, turbulent water spaced by a gray, rocky sand strip. We wandered 200 feet above the beach on a windy promontory. Our hunt for plants led to the discovery of an old graveyard, far out above the sea. Names and inscriptions were scarcely legible on the markers: one date was discovered—1889. Our curiosity aroused, we inquired in a nearby village and discovered that the graveyard served a fishing village during the 1880's and that Mr. Dollar of the Dollar Line built his first boat in the inlet behind the promontory. On the beach of the inlet was a scattering of people preparing for the lowest tide of the year, which meant good abalone hunting.

A few days later we were in San Francisco, whence we drove eastward across the valley of Central California past miles of fields, orchards, and flower gardens. It is surprising to see such growth in the intense heat of this dry valley. Toward the end of the day we climbed up into a paradise of cool, majestic cliffs and forests before descending into the impressive canyon of the Yosemite National Park. Near Tenaya Lake we discovered two fine monkey flowers, the bright yellow *Mimulus pilosus*, and the pink and white species *M. Lewisii*. We camped in the Tuolumne Meadows, high alpine flats 3,000 feet above Tuolumne River and the canyon floor. These grassy meadows were beautiful, dotted as they were here and there with a variety of flowers. Chief among these were two striking gentians, the blue *G. calycosa* and the white *G. Newberryi*. Above the meadows a myriad of lovely beardtongues gave brilliant life to what might have been drab, rocky slopes.

(Continued in January Bulletin)

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